

SUMMARY OF THE CLAIMS ON FILE

1. (Previously presented) Surface-crosslinked superabsorbent particles comprising:

(i) about 50% to about 88%, by weight, of a superabsorbent polymer, said superabsorbent polymer comprising about 0.001% to about 5%, by weight, of a surface crosslinking agent;

(ii) about 15% to about 35%, by weight, of a clay, said clay present in the vicinity of surfaces of the superabsorbent particles; and

(iii) 0% to about 25%, by weight, of an inorganic network builder, said particles prepared by a method comprising the steps of:

(a) polymerizing one or more monomers capable of providing a superabsorbent absorbent polymer in the presence of an internal crosslinking monomer to form a superabsorbent polymer hydrogel;

(b) comminuting the superabsorbent polymer hydrogel to form superabsorbent polymer hydrogel particles;

(c) drying the superabsorbent polymer hydrogel particles of step (b) to provide dry superabsorbent particles;

(d) applying a mixture comprising a surface crosslinking agent and a clay to the surface of the superabsorbent particles of step (c) to provide surface-treated superabsorbent polymer particles; and

(e) then heating the surface-treated superabsorbent polymer particles for a sufficient time at a sufficient temperature to surface crosslink the surface-treated superabsorbent polymer particles and position the clay in the vicinity of the surfaces of the surface-crosslinked superabsorbent particles.

2. (Original) The particles of claim 1 wherein the superabsorbent polymer is present in an amount of about 55% to about 85%, by weight, and the clay is present in an amount of about 15% to about 25%, by weight.

3. (Previously presented) The particles of claim 1 wherein the inorganic network builder is present in an amount of about 5% to about 20%, by weight.

4. (Previously presented) The particles of claim 1 wherein the inorganic network builder is selected from the group consisting of a silicate, an aluminate, and an aluminosilicate.

5. (Previously presented) The particles of claim 1 wherein the inorganic network builder comprises sodium silicate, sodium aluminate, or a mixture thereof.

6. (Previously presented) The particles of claim 1 wherein less than 5%, by weight, of the particles have a diameter of 200 μM or less.

7. (Previously presented) The particles of claim 1 wherein the superabsorbent polymer comprises a polymerized α,β -unsaturated carboxylic acid, or a salt or an anhydride thereof.

8. (Previously presented) The particles of claim 1 wherein the monomer is selected from the group consisting of acrylic acid, methacrylic acid, ethacrylic acid, α -chloroacrylic acid, α -cyanoacrylic acid, β -methacrylic acid, α -phenylacrylic acid, β -acryloxypropionic acid, sorbic acid, α -chlorosorbic acid, angelic acid, cinnamic acid, p-chlorocinnamic acid, β -stearylacrylic acid, itaconic acid, citraconic acid, mesaconic acid, glutaconic acid, aconitic acid, maleic acid, fumaric acid, tricarboxyethylene, maleic anhydride, vinyl sulfonic acid, allyl sulfonic acid, vinyl toluene sulfonic acid, styrene sulfonic acid, sulfoethyl acrylate, sulfoethyl methacrylate, sulfopropyl acrylate, sulfopropyl methacrylate, sulfopropyl acrylate, sulfopropyl methacrylate, 2-hydroxy-3-methacryloxypropyl sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid, methacryloxy ethyl phosphate, and mixtures thereof.

9. (Previously presented) The particles of claim 1 wherein the superabsorbent polymer is selected from the group consisting of poly(acrylic acid), a hydrolyzed starch-acrylonitrile graft copolymer, a starch-acrylic acid graft copolymer, a saponified vinyl acetate-acrylic ester copolymer, a hydrolyzed acrylonitrile copolymer, a hydrolyzed acrylamide copolymer, an ethylene-maleic anhydride copolymer, an isobutylene-maleic anhydride copolymer, a poly(vinylsulfonic acid), a poly(vinylphosphonic acid), a poly(vinylphosphoric acid), a poly(vinylsulfuric acid), a sulfonated polystyrene, and salts and mixtures thereof.

10. (Previously presented) The particles of claim 1 wherein the superabsorbent polymer is selected from the group consisting of a poly(vinylamine), a poly(dialkylaminoalkyl (meth)acrylamide), a polyethylenimine, a poly(allylamine), a poly(allylguanidine), a poly(dimethyldiallylammonium hydroxide), a quaternized polystyrene derivative, a guanidine-modified polystyrene, a quaternized poly((meth)acrylamide) or ester analog, a poly(vinylguanidine), and salts and mixtures thereof.

11. (Previously presented) The particles of claim 1 wherein the superabsorbent polymer comprises polyacrylic acid neutralized about 25% to 100%.

12. (Previously presented) The particles of claim 1 wherein the clay is a swelling clay selected from the group consisting of montmorillonite, saponite, nontronite, laponite, beidelite, hectorite, sauconite, stevensite, vermiculite, volkonskoite, magadite, medmontite, kenyaite, and mixtures thereof.

13. (Previously presented) The particles of claim 1 wherein the clay is a nonswelling clay selected from the group consisting of a kaolin mineral, a serpentine mineral, a mica mineral, a chlorite mineral, sepolite, palygorskite, bauxite, and mixtures thereof.

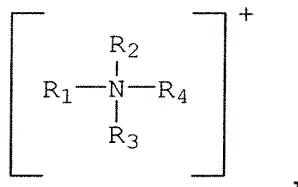
14. (Original) The particles of claim 13 wherein the nonswelling clay comprises a kaolinite.

15. (Previously presented) The particles of claim 1 wherein the clay is an organophilic clay having an organic component and an inorganic component.

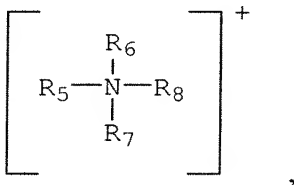
16. (Original) The particles of claim 15 wherein the inorganic component of the organophilic clay comprises smectite, bentonite, hectorite, montmorillonite, beidelite, saponite, stevensite, nontronite, illite, attapulgite, a zeolite, fuller's earth, and mixtures thereof.

17. (Previously presented) The particles of claim 15 wherein the inorganic component of the organophilic clay comprises montmorillonite.

18. (Previously presented) The particles of claim 15 wherein the organic component of the organophilic clay comprises



wherein R_1 is an alkyl group having at least 20 carbon atoms, R_2 is hydrogen, benzyl, or an alkyl group having at least 10 carbon atoms, and R_3 and R_4 , independently, are a lower alkyl group;



wherein R_5 is CH_3 or $C_6H_5CH_2$, R_6 is $C_6H_5CH_2$, and R_7 and R_8 , independently, are alkyl groups containing long chain alkyl radicals having 14 to 22 carbon atoms; or a mixture thereof.

19. (Previously presented) The particles of claim 15 wherein the organophilic clay is selected from the group consisting of dimethyl benzyl (hydrogenated tallow) ammonium bentonite, methyl benzyl di(hydrogenated tallow) ammonium bentonite, dimethyl di(hydrogenated tallow) ammonium bentonite, methyl bis(2-hydroxyethyl) octadecyl ammonium bentonite, a bentonite clay treated with an amine containing three to eight carbon atoms, and mixtures thereof.

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)